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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/165,772 | 10/02/1998 | JOHN EDWARD COOK | 051481-5047-01 | 8315 |
| 9629 | 7590 | 03/23/2005 | | |
| MORGAN LEWIS & BOCKIUS LLP 1111 PENNSYLVANIA AVENUE NW WASHINGTON, DC 20004 | | | EXAMINER MILLER, ROSE MARY | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2856 | |

DATE MAILED: 03/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/165,772

Applicant(s)

COOK ET AL.

Examiner

Rose M. Miller

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 17-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 17-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Withdrawal of Examiner's Amendment

1. The Examiner is sorry to have to withdraw the Examiner's Amendment which was agreed upon during the telephone interview of 02 February 2005. Based upon a review of the Application by another Examiner, the following new issues under Section 112, 1st paragraph (concerning the equations presented in the specification and in Claims 3 and 19) were brought to the attention of this Examiner and must be resolved before the Application can be passed to Allowance. Those changes discussed during the interview will overcome the rejections made below under Section 112, 1st paragraph which were previously presented in the last office action but will not overcome the other rejections presented below.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 3 and 19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The equation claimed in these claims is not properly described in the specification such that one of ordinary skill in the art would know how to use the equation or where the equation was developed from. Using simple basic temperatures, the following results are obtained from Applicant's equation:

Example One :

$T_1 = 50^\circ$, $T_2 = 47^\circ$, $P_1 = 25$ psi

Based on the Ideal Gas Law, $P_2 = 23.5$ psi

Based on Applicant's Specification, $P_c = 26.5$ psi

Therefore, following Applicant's invention, the system will indicate the presence of a leak when, in actuality, there is no leak.

Example Two:

$T_1 = 50^\circ$, $T_2 = 53^\circ$, $P_1 = 25$ psi

Based on the Ideal Gas Law, $P_2 = 26.5$ psi

Based on Applicant's Specification, $P_c = 23.5$ psi

Therefore, following Applicant's invention, the system will not indicate the presence of a leak, as no leak is actually present.

While Applicant's specification does indicate that the equation recited in the specification is used when the temperature increases during the wait period, Applicant's claims, as they are now found in the Application, do not indicate that the invention operates only during a temperature increase in the monitored system. Therefore, the specification is not fully enabling in that it does not work properly when the temperature in the monitored system decreases during the waiting period.

4. Claims 1-3 and 17-24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The originally filed specification fails to provide support for "supplying from the tank fuel being combusted by the automotive vehicle" (as found in claims 1 and 17), "combusting in the internal combustion engine fuel from the tank" (as found in claim 18), or "supplying fuel from the tank to the engine" (as found in claim 23).

Applicant relies on lines 8-12 of the originally filed specification for support for the above phrases. However, these lines read verbatim "Gas tank 110, as depicted in Figure 1, is coupled in fluid communication to charcoal canister 114 and to the normally closed canister purge valve 115. The charcoal canister 114 is in communication via the

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normally open canister vent solenoid valve 116 to filter 117. The normally closed canister purge valve 115 is coupled to manifold (intake) 118.” There is no mention of an “engine” or “supplying fuel” to an automotive vehicle such that the above phrases in the claims would have the proper support needed. And there clearly is no indication of supplying fuel while the leak testing is being performed as is now claimed.

Furthermore, Applicant states at page 1 lines 25-31 that three conditions are required in order to perform the leak testing. These conditions are a) Uniform pressure throughout the system being leak-checked; b) No fuel movement in the gas tank (which may results in pressure fluctuations); and c) No change in volume resulting from flexure of the gas tank or other factors. Applicants new step of “supplying fuel” violates both conditions b) and c) recited above as it results in both movement of fuel in the gas tank (possible sloshing as the fuel is removed) and a change in the volume of liquid in the gas tank which can result in a change in volume of the tank itself if a vacuum is produced as the fuel is removed.

Therefore, Applicant’s originally filed specification fails to provide support for the invention as now claimed.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1-2, 17-18, and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Reddy et al. (US 5,263,462)** in view of **“Correcting Pressure Change in Leak Test Data for Changes in Temperature”, Nondestructive Testing Handbook** (Hereafter referred to as **“Correcting Pressure”**).

With regards to claims 1, 17, 18, and 23, Reddy et al. teaches that it is known to supply fuel from the tank to an engine for combustion by the automotive vehicle, measuring a first temperature of the vapor at substantially the first point in time; measuring a second temperature and a pressure at a second point in time and determining if a leak has occurred from the measurement of the pressure at the second point in time.

“Correcting Pressure” teaches that it is known to determine the presence of a leak in a system by correcting a pressured measured at a first point in time with the change in temperatures between the first and second points in time in order to compare the first measured pressure with a pressure measured at a second point in time (based upon the ideal gas law).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made modify **Reddy** to include the steps of measuring and recording an initial pressure and temperature at a first point in time, measuring and recording a second pressure and temperature at a second point in time, computing a temperature-compensated pressure based upon the measured temperatures and comparing the temperature-compensated pressure to the pressure measured at the second point in time to determine the presence of a leak in the system as these steps are clearly inherent in the utilization of the ideal gas law for determining the presence of a leak as taught by **“Correcting Pressure”**, especially when testing an automotive fuel system as disclosed by **Reddy**.

With regards to claims 2, 20-21, and 24, the ideal gas law utilizes produces a temperature-compensated pressure which is computed as a function of the known

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pressure at the first point in time and the temperatures measured at the first and second points in time. As for recording the pressures and temperatures, **Reddy** clearly teaches the capability of recording the measured values in the testing system. Furthermore, the recording of such measurements is so well known throughout the art of measuring and testing that they are not a patentable distinction between the prior art and the present invention.

With regards to claims 22, **Reddy** clearly teaches that the combusting occurs separately from the measuring as the system must be stable (i.e. no movement of vapor) in order to perform the leak testing without substantial errors or compensations needing to be done.

Response to Arguments

8. Applicant's arguments filed 8 December 2004 have been fully considered but they are not persuasive. Applicant has objected to the rejection of the claims based upon 112, 1st paragraph due to the addition of the step of supplying the fuel to the automotive engine. The rejection is still deemed proper, as Applicant has based his invention upon the ideal gas law. The ideal gas law requires that no movement of the liquid or vapor being measured can occur in order for the ideal gas law to work. The removal of fuel or vapor from the automotive fuel system would require Applicant's invention to compensate for the change in volume that has occurred within the system. As Applicant's system clearly does not compensate for movement or removal of the fuel from the fuel tank, the supplying of the fuel to the automotive engine cannot occur at the same time of the measuring and testing. The steps of measuring must be separated from the step of supplying the fuel to the automotive engine in order for Applicant's invention to rely on the properties of the ideal gas law.

As for the mention of US Patent 6,089,081, this was done as a courtesy to Applicant. As the two inventions are so close in scope and claimed invention, it behooves Applicant to review the patent in order to avoid a Double Patenting rejection which would be forthcoming should the claims become obvious over one another.

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Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rose M. Miller whose telephone number is 571-272-2199. The examiner can normally be reached on Monday - Friday, 7:30 am to 3:30 pm.

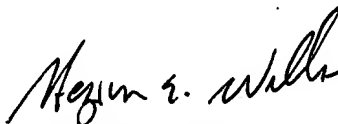
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on 571-272-2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



RMM

17 March 2005



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